



NAVY DEPARTMENT

BUMED NEWS LETTER

a digest of timely information

EDITOR - CAPTAIN W. W. HALL, (MC), U.S. NAVY

Vol. 1

Friday, April 2, 1943

No. 3

The Tropics are Safe: Dr. E. D. Merrill, famous botanist, who has spent much of his professional life in the Indo-Malaysian and Polynesian regions feels that many persons fear the tropics without cause, that facts would dispel those fears. On "Debunking the Tropics" he says:

(a) On field trips he has seen less than one snake a week and considers that the chances of snake bite are a great deal less in Melanesia than in the Palisades along the Hudson River.

(b) Though large centipedes and scorpions are found, he saw only a dozen in 22 years of field trips.

(c) Venomous sea snakes are unable to bite a human being because their mouth parts are shaped for eating small fish.

(d) Wood leeches may leave bleeding wounds that become secondarily infected, but are found only in primary forests in the rainy season.

(e) There are several species of plants that produce an irritant juice similar in its action on skin to our poison ivy. In his opinion the chances of contact poisoning are less in the Old World Tropics than in New York State. Prophylaxis and therapy is the same as in poison ivy or oak (Rhus) dermatitis.

(f) Vines with stinging hairs and vines with needle-like whiskers are bothersome but not dangerous; they are found only in primary forests.

* * * * *

The above notes on reptilia and plants must not be construed to minimize the importance and danger of malaria and dysentery, the great enemies of man in tropical latitudes.

* * * * *

Food Available Nearly Everywhere in the Tropics: There are many forms of available food plants throughout Melanesia including the buds of all palm trees, the terminal buds of banana trees, the young stems of the papaya, the bread fruit and the peanut. (E.D.M.)

* * * * *

A manual now in progress on "Edible and Poisonous Plants of the Old World Tropics" as well as notes on the much over-rated reptilian dangers of the tropics have been prepared by Dr. E. D. Merrill, now Professor of Botany, Harvard University, and Curator of the Arnold Arboretum. Further reference may be made to this material either in the Bumed News Letter or more formally in other Bureau publications.

* * * * *

Atabrine. High Initial Dose Treatment in the Therapy of Malaria: During a Conference on Malaria on February 25, 1943, Dr. James A. Shannon, Assoc. Professor of New York University School of Medicine and Chairman of the Clinical Testing of Antimalarials, now engaged in research on the relationship between sustained blood concentration and the therapeutic effectiveness of atabrine, discussed informally some of his recent observations in his studies.

He first pointed out that when atabrine is given as usually recommended, namely, 0.1 gram t.i.d. for 5 or 7 days, the blood concentration of the drug rises very slowly and does not reach its highest level until the end of the treatment. He felt that this, at least in part, could explain the delay in controlling the paroxysms and believed that a certain proportion of the acute recurrences could be attributed to inadequate drug therapy, the result of the present standard regime.

Having made this observation, he decided to try a method of administration which would produce a high blood level as quickly as possible and maintain it during the course of treatment. To accomplish this, he found the following dosage suitable:

1st day - intramuscularly 0.4 gram (0.2 gram, one ampoule, in each buttock). By mouth, 0.1 gram every 6 hours, giving the first dose simultaneously with the intramuscular injections.

2nd and 3rd day - 0.1 gram every 8 hours.

4th and 5th day - (and 6th and 7th if desired) - 0.1 gram every 12 hours.

Totals: 1st day - 0.8 gram
 2nd day - 0.3 gram
 3rd day - 0.3 gram
 4th day - 0.2 gram
 5th day - 0.2 gram
 6th day - 0.2 gram
 7th day - 0.2 gram

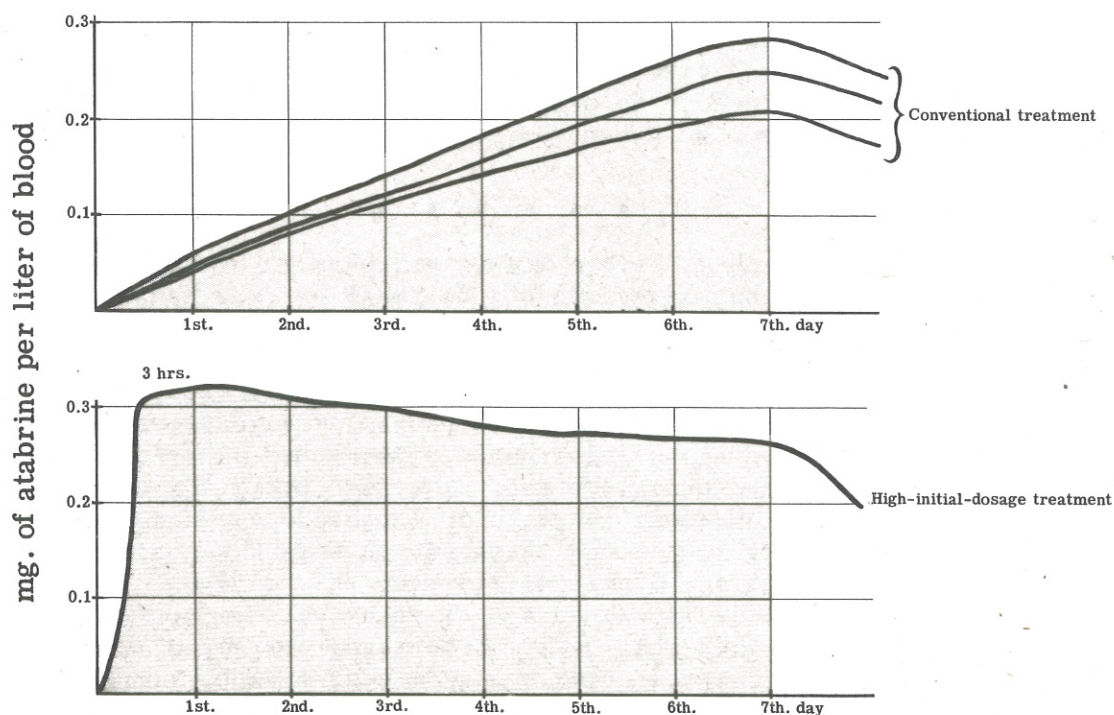
Total for 5-day treatment - 1.8 grams

Total for 7-day treatment - 2.2 grams

Note that these totals correspond closely to those of the conventional treatment, i.e., 1.5 grams for the 5-day treatment; 2.1 grams for the 7-day treatment.

For the intramuscular injections, he uses atabrine dihydrochloride which comes in ampoules ready for intramuscular use, each containing 0.2 gram. This preparation is slightly irritating. Other less irritating preparations may become available. In that event, announcement will be made.

The diagrams below illustrate the difference in the rise and maintenance of blood levels during the two methods of treatment. Note that during the conventional treatment the parasites are not subjected to a high concentration of atabrine until after the 3rd or 4th day, while in the high initial dose treatment high concentration is attained immediately and maintained throughout the treatment period. Observations on the conventional form of therapy indicate that a moderate concentration is maintained for some two days subsequent to the last dose of atabrine. This situation also obtains with the new dosage schedule.



High initial dosage treatment has been tried by Dr. Shannon on 15 cases of therapeutic malaria. Conclusions drawn from work on this form of malaria can not, he felt, be translated to the naturally occurring disease observed in the field. However, the data did establish the principle that, given a high initial concentration of atabrine, the effect on the parasites was prompt as was the disappearance of clinical symptoms. He felt, furthermore, that trials in the field with this form of therapy are very desirable and that these should be conducted in such a way as to permit conclusions on the relative value of this method of administration of atabrine as compared to the conventional method or the method of therapy which involves two days of quinine followed by 5-7 days of atabrine. Should this high-initial-dosage treatment be used among personnel on atabrine suppressive treatment, due consideration must be given to the fact that these men already carry a slight concentration of atabrine in the blood. (E.G.H.)

* * * * *

Ammonium Sulfamate: A new chemical known as ammonium sulfamate acts to retard burning. Cloth properly sprayed or dipped in this solution and dried is merely scorched when touched by a blazing blow-torch. Workers exposed to fire hazards have their clothes treated with this chemical and it is also being used on paper blackout curtains.

* * * * *

Tinted Eyeglasses: The vast majority of people do not need tinted glasses except on rare occasions. People who complain of pain from light need a careful medical examination. Tinted lenses were invented to absorb the excess visible rays of light, but should not indiscriminately be used for work indoors because often they take away too much light and thus put an increased burden on the eyes. Workers in foundries and in motion picture studios, people with ocular diseases and those who have just had eye operations are the exceptions. It may be suggested then that tinted eyeglasses be worn only for protection against glare at high altitudes, at sea, on the seashore, in deserts and in snow fields. (Blain, L'Un. Med. du Can., Sept. '42.)

* * * * *

Red Blood Cells Salvaged: Red Blood cells, formerly a by-product wasted in the preparation of blood plasma, are now being salvaged and used in a saline solution to supplement direct transfusion (Detroit Red Cross Center). No means has been discovered for preserving and shipping red cells in the same manner as blood plasma. They, however, can be used within one week after the blood has been drawn from a donor. All red cell solutions must be typed. Their use has proved to be a remarkable aid in the treatment of various types of anemia as well as a valuable supplement to the hospital blood banks. (Science News Letter, Feb. 27, '43.)

* * * * *

The Air-Age Education Series contains misinformation. A recent issue of "Science" (February 26, 1943, p. 201) discusses four volumes in a series published by Teacher's College, Columbia University. These books have been prepared for use in high schools. The introduction states -- they "represent a major step in providing schools with teaching materials." "Science" book reviewer points out glaring errors, for example, a statement that the atmosphere ends 21,000 miles above the surface of the earth because gravitation stops abruptly at that point. The reviewer concludes that if books such as these should be adopted in many schools they could warp the thinking of countless students and do untold harm to the future of aviation.

Another volume in this series is entitled "The Biology of Flight". Its purpose is, according to the introduction, to "help prepare the American people for constructive living as world citizens in the air age." The book, however, contains misinformation of a kind which might be expected to discourage or alarm the prospective air traveler. One such statement appears on page 46, "Photographic records of the heart's action at 5,000 feet show that certain changes take place which have been interpreted as signs of heart damage."

The description of aero-embolism is open to similar criticism. The statement is made that nitrogen bubbles may block blood vessels supplying the heart muscle, causing it to fail, while such bubbles blocking the circulation to the lungs may bring about a condition in which the air sacs fill with fluid so that one may literally drown in his own liquid. It is stated that coughing is not effective in getting rid of this fluid because of the thinness of the air at high altitude. Also, we find that in some cases paralysis occurs and may come on without warning, that any part of the body is likely to be affected and death may take place if a vital organ is involved.

None of these alarming syndromes have been observed among the many thousand persons who have now been indoctrinated as to the effects of altitude in low pressure chambers and in operational flying.

* * * * *

Sodium sulfate purgation during sulfanilamide therapy may be dangerous. Parodi and Foa, quoted in current literature of J.A.M.A., page 708 - February 27, 1943, report the death from methamoglobinemia of a woman under sulfanilamide therapy who took sodium sulfate. Cyanosis stupor and oliguria were noted the following day. Death apparently occurred within 36 hours. Though renal damage may have been present, renal failure probably was not an important element in so prompt a fatality.

* * * * *

New Definition of Term "Medical Examiner": ALNAVSTA of January 30th construes definition of term "medical examiner", Articles 1200 and 1201, U.S. Navy Regulations, so that the term "medical officer" or "medical examiner" which previously included only Naval medical officers now includes

medical officers of the Army and Public Health Service and civilian medical practitioners employed for the purpose of conducting physical examinations for Selective Service inductions.

It will be noted that the two Articles of regulations are not amended but merely "construed", the inference being that as soon as the war is over and the Selective Service law no longer in operation, the Navy Regulations would again come into full force and effect.

Paragraph 1414, Manual of the Medical Department, is affected equally with the above Articles of Navy Regulations, and here again rather than modify the Manual it would seem necessary only to "construe". The reference ALNAVSTA of January 30th is reprinted below for the information of all officers.

"ALNAVSTA -- 30 January 1943

Due Selective Service the term medical officer or medical examiner appearing in Articles 1200 and 1201 NAVREG is construed to include Army Navy and Public Health medical officers and civilian medical practitioners employed for such purpose."

* * * * *

Massive Intestinal Resection: Coleman and Bennett review the literature and report an unusual case in which a gun shot wound of the abdomen destroyed a large portion of the abdominal wall and caused irreparable damage to all of the ileum, the caecum, the ascending colon, the hepatic flexure and the first half of the transverse colon. The situation seemed hopeless, but after treating the patient for shock and after the administration of two blood transfusions, 14 feet, 8 inches of intestine with 22 inches of colon were resected with slow but complete recovery of the patient. The term "massive" intestinal resection ordinarily means 200 cm (6 feet 7 inches) or more. The patient lost 40 pounds post-operatively due to a restricted diet during a period of 10 weeks.

It is noted in summary that even in the face of what appears to be a hopeless situation, massive intestinal resection is possible after control of the primary shock. The post-operative diet should be high in carbohydrates and proteins and low in fat and cellulose. (Am. J. of Surg., Feb. '43.)

* * * * *

Air Evacuation - Middle East: Reports from the battle fronts indicate that great benefit has accrued from the use of air evacuation. It should be stressed, however, that seriously wounded men should not be evacuated immediately after operation from hospitals where adequate care is available. This particularly applies to abdominal and intestinal operations. They should be given at least 4 days, preferably 8 to 10 days, post-operative recovery before evacuation. The advantages of early surgery may otherwise be offset by the stress of air travel.

Presumptive Kahn Antigen: In an effort to minimize the large expenditure of effort and materials in performing routine Kahn tests on members of our greatly increased Naval personnel, the Naval Medical School has prepared Presumptive Kahn antigen for distribution to Naval activities. The Presumptive Kahn test is a dependable, one tube, screen test that eliminates approximately 60% of the work in the routine testing of blood serum for syphilis. It is diagnostic only insofar as its negative results are concerned. ITS POSITIVE RESULTS MUST BE CONFIRMED BY THE STANDARD KAHN TEST. The titer of Presumptive Kahn antigen is much higher than that of Standard antigen. This makes it possible to perform between 100 and 125 tests per cc of antigen.

The apparatus and reagents are identical with those of the Standard Kahn except that Presumptive antigen is used instead of Standard antigen. Presumptive antigen is a sensitized antigen which can be used only in performing the Presumptive test. It must never be used for the Standard test and Standard antigen is not sensitive enough to be used for the Presumptive test.

Technic of the Presumptive test is simple and may be obtained by letter request addressed to the Medical Officer in Command, Naval Medical School, Bethesda, Maryland.

The results of the test are read both immediately and after fifteen minutes, preferably by different observers. The average of these two readings is recorded. Tubes should be examined individually. Those showing a plus-minus reaction, or less, are reported as NEGATIVE. Those showing a one plus reaction, or greater, are re-examined by the Standard Kahn test. The results of the Standard test are reported, not those of the Presumptive. The Presumptive test is thus of value because it eliminates negative sera by means of a one tube test. The Standard Kahn is a three tube test.

* * * * *

In spite of the time-saving advantage and the reliability of the Presumptive Kahn test, shipments of Standard antigen to Naval activities have far exceeded those of Presumptive antigen. Smaller stations and vessels would perhaps not be justified in employing the Presumptive Kahn test routinely because of the relatively small number of Kahn tests performed. It is, however, hoped and urged that activities routinely performing many Kahn tests avail themselves of the reliable, time-saving and material-saving Presumptive Kahn test.

* * * * *

Cryptic Nostalgia: On the positive side, a man with this disorder, can be described as a person who has not as yet severed his ties with home and is completely immersed in thoughts of family and friends. He is

literally a person with "something on his mind," and that something is present to the exclusion of everything else. This continual preoccupation with thoughts of home and friends causes an air of abstraction. The subject appears absentminded and vague and is slow in responding. He has trouble paying attention, finds it hard to concentrate on the task at hand and may fail to carry out his routine duties efficiently. He, himself, has no understanding of his difficulties and cannot comprehend the reason for his failure to measure up to the standard expected of him.

In the examination of recruits for the military service it is necessary to keep cryptic nostalgia in mind, as it may be confused with other, more serious conditions, particularly schizophrenia and feeble-mindedness. The abstracted air of persons with such nostalgia resembles that of patients with dementia praecox.

Insight is easily acquired, however, and a single interview with a psychiatrist usually suffices to return a recruit to efficiency. (Wittson, et al, War Med., Jan. '43.)

* * * * *

Immune Globulins: As by-products of albumin production, the various constituents of the globulin fraction are becoming increasingly important. These include fibrinogen, thrombin, antibodies and isohemagglutinins which can be chemically separated from one another without significantly reducing their potency. Considerable investigation has been done on the fraction containing the antibodies. When concentrated to a 20% solution, this fraction, in dosages of 0.5 to 3.0 cc intramuscularly, appears to be excellent for the prevention and attenuation of measles. Various methods of applying fibrinogen as a burn dressing after precipitation by thrombin have been attempted with limited success. Thrombin has been used as a local hemostatic in small wounds with encouraging results. Should the original plasma be derived entirely from either blood of group A or B, the resultant concentrated isohemagglutinin fraction provides a good source of typing serum.

* * * * *

Emergency Vein: Since the casualties on the battlefield are all male patients, intravenous medication or infusions can, if necessary, be administered through the corpus cavernosum of the penis. This is not generally appreciated by the medical profession.

In cases of destruction of peripheral veins from burns, injuries or collapse, the use of the corpus cavernosum may be a life saving procedure.

The technique is simple:

Select a site over the corpus cavernosum, hold the penis firmly, prepare the skin and insert the needle from the dorsal surface obliquely

through the skin, the fascia, (Buck's fascia) into the corpus cavernosum which is composed of venous spaces. The point of the needle should be directed toward the base. Ordinarily blood cannot be aspirated when the needle is in place. With care there is no danger of puncturing the urethra or the dorsal veins of the penis. Slightly more pressure is needed for the injection than in ordinary intravenous infusions due to the resistance of the fibromuscular tissue, but the rate of flow of the injection may be as rapid as is safe in other intravenous routes.

Irritating solutions should not be used because of the risk of a chronic cavernositis, but this method is ideal for both blood plasma and citrated blood. This route is not recommended if the subcutaneous veins are accessible, nor is it recommended for any solution except blood plasma or citrated blood. (Phelps, South. Med. J., Dec. '42.)

* * * * *

Gelatin Not a Satisfactory Blood Substitute: At a recent conference on gelatin as a blood substitute, called by the National Research Council, it was voted not to recommend this material to the Armed Forces for the following reasons: instability of liquid preparations, slowness of solubility of the dried product, necessity for warming when dissolving dried preparations, non-reproducibility, heterogeneity with respect to molecular size, pyrogenicity, and tendency toward pseudo-agglutination of red cells.

Despite these objections, chemical, physiologic and clinical investigations will be continued. It seems unlikely that gelatin will be used by the Armed Forces during the present war.

* * * * *

Sulfathiazole as a Prophylaxis for Gonorrhea: Loveless and Denton report that after oral sulfathiazole prophylaxis of a company of approximately 1400 Negro troops a phenomenal disappearance of gonorrhea and chancroid occurred. No toxic or allergic reactions in the test group other than occasional complaints of mild nausea were observed. The cost of this prophylaxis was about 10 cents per soldier monthly. (Jour. A.M.A., Mar. 13, '43.)

* * * * *

Influence of Sulfanilamide on Hazards of Anesthesia: On the basis of a series of experiments done on dogs, it may be concluded that the presence of therapeutically effective concentrations of sulfanilamide in the blood did not increase the hazard of anesthesia with pentothal sodium or ether. The evidence strongly suggested that sulfanilamide may have been of benefit. (Staff Meet. Mayo Clin., Jan. 27, '43.)

* * * * *

ALNAV BASEGRAM # 48, 15 March: A board has been set up in the office of the Vice Chief of Naval Operations to conduct thorough study of designs and materials best suited for special and protective clothing and personal equipment required for Naval personnel serving afloat and ashore in tropical temperate and cold zones with a view of standardization of articles establishment of allowances and simplified procedure for issue. Comments and suggestions concerning existing and proposed articles are requested.

* * * * *

Use and Conservation of Medical Department Supply Catalog Items: Urgent Necessity for. (Reprinted from the Medical Supply News Letter, 1-43 U.S. Naval Medical Supply Depot, Brooklyn, New York.)

References: (a) Articles 83(1) and 1194, U.S. Navy Regulations.
 (b) Paragraph 3063, Manual of the Medical Department.
 (c) BuM&S Form Ltr. No. 35 of March 20, 1942.
 (d) BuM&S Form Ltr. D:HGB, L8-2/JJ57(013) of June 6, 1942.

Reference (c) emphasizes how total war has necessitated stringent restrictive measures in procurement and shipping. It stresses emphatically the employment of substitutes, confining requisitions to absolute essentials and rigid conservation of supplies and equipment.

In promoting and sustaining the policy of conserving medical supplies, Medical and Dental Departments should establish a system whereby the normal monthly rate of issue (per patient) to each ward, clinic and department, is determined for a selected group of items -- the items being changed from time to time, but the system to be a continuing one. With these rates known, it follows that waste will be easily detected and controlled; and that data for logistic purposes will be readily available - data that will also prove invaluable in comparing the conservation measures employed by John Doe in contrast to those of Tom Smith.

-- EXAMPLE --

				MONTHLY issue rate per Patient	
<u>ACTIVITY:</u>	<u>Item:</u>	<u>Stock No:</u>	<u>ITEM TITLE</u>	<u>UNIT</u>	<u>COST</u>
- - - -	1	1-010	ACETONE	1-lb bot	.19 (?)
- - - -	2	1-725	SOAP, Hard (Castile)	1-lb pkg	.12 (?)
(etc.)	3	1-850	SOLUTION OF CRESOL, saponated	1-qt tin	.28 (etc.)
	4	1-945	MORPHINE SULFATE, 0.008 gm.	20 in tube	.11
	5	2-345	COTTON, absorbent	1-lb roll	.21
	6	2-425	GAUZE, plain	25-yd roll	.58
	7	2-1300	THERMOMETER, clinical	one	.21
	8	4-390	FILMS, X-RAY, 8 x 10	1/2-gross pkg	9.13
	9	11-100	AMALGAM, alloy fillings	1-oz pkg	.42
	10	11-1055	NAPKINS, dental	500 in box	.80

CONTINUED ON NEXT PAGE

CLEANING SUPPLIES OBTAINED FROM SUPPLY OFFICER:

SOAP POWDER	pkg	--
BON AMI	bar	--
STEEL WOOL	pkg	--

Reference (d) supplies detailed instructions regarding the conservation (resharpening) of Dental Burs.

To conserve Tin, Mercury and Precious Metals, dental activities should collect amalgam, precious metal and alloy scrap and return it to the U.S. Naval Medical Supply Depot, Brooklyn, New York, in January and July. Parcels weighing less than four (4) pounds may be mailed under Government frank. No letter of transmittal is required. In the forwarding of precious metal scrap, the inner wrapping (or container) should bear the return address and notation "Precious Metal Scrap".

All unserviceable Dental Engine Handpieces should be surveyed promptly for return to the U.S. Naval Medical Supply Depot, Brooklyn, for repair and reissue.

* * * * *

Drinking water from the sea has always been the mariners dream. During recent months several chemical methods for making sea water drinkable have been proposed. The more promising suggestions have been investigated at the National Institute of Health and the Naval Medical Research Institute. So far, none have been found entirely satisfactory. Recently, a member of the staff of the Naval Medical Research Institute devised a method for removal of the sodium which makes the outcome of this research more promising. A comparatively pure drinking water containing less than 0.3% solids has been obtained by this method, employing chemical means alone.

To date the laboratory method of treating sea water has yielded a volume ratio of 17 parts of drinking water for each part of chemical.

Investigation has been proceeding on this specific process for several weeks to make the procedure more practical. Whether the method can be further developed to meet the requirements for use on life rafts remains to be determined: Some progress has been reported.

Further announcement will be made at a later date from the Research Institute. This note is in the nature of a preliminary progress report to Naval Medical Officers.

* * * * *

A New Method of Skin Protection for Ileostomies and Colostomies: War injuries of the abdomen resulting in fecal fistulae, ileostomies, and colostomies may be expected. Maceration of the skin, pain and discomfort from the constant irritation of the discharging fecal material have always been problems. Various ointments, aluminum paste, etc. have met with only moderate success.

The author reports on a Vinylite resin formula which forms a thick, impermeable transparent film, is easy to apply and adheres closely to the skin. Formula: Vinylite resin .25 gm., Collodion .25 cc., Acetone 100 cc. Vinylite is produced by the Carbon and Carbide Chemical Corp., Chicago.

Directions for Use:

1. The first application of the solution is best done immediately prior to the enterostomy.
2. Any ointment which is present is completely removed and all of the skin area completely cleansed with ether and acetone.
3. The solution is poured on the skin around the incision and smeared evenly with an applicator or tongue depressor. The sides of the exteriorized bowel may be covered with the solution without any harmful effect.
4. At least ten to twenty minutes must be allowed for thorough drying of the solution and the formation of an adequate film.
5. The bowel is then opened and a dry sterile dressing applied.
6. The solution is reapplied without removing the previous coats as often as necessary depending upon the consistency and amount of the fecal drainage. This may vary from several times daily to once every few days. (Presman, Surgery - Feb. '43.)

* * * * *

Surgery in the Desert: Among 2500 battle casualties, "not one solitary operation was performed primarily to deal with injury of the intrathoracic structures". Foreign body removals were all delayed until the patient reached a base hospital. Aspiration was used to relieve mediastinal shift or respiratory difficulty. On 63 cases of penetrating wounds of the chest only three developed empyemas. Conservatism in front-line thoracic surgery is advocated. (Lancet Lond. 1942 242 1766.)

* * * * *

Pilonidal Cyst: The Local Use of Buffered Sulfanilamide in Primary Closure: Ninety-four cases of pilonidal cyst in which primary wound closure was attempted are reported on. Author used sulfanilamide powder buffered with ten per cent calcium carbonate. Sulfanilamide appeared most effective locally in a pH of 9.

Twenty-nine patients in whom no drug was employed remained in the hospital after excision an average of 24.8 days.

Five cases with sulfathiazole - 22 days.

Thirty-two cases with sulfanilamide - 27.9 days.

Twenty-eight cases with buffered sulfanilamide - 18.8 days,

(Scott
Ann. Surg.
Feb. '43.)

From a military point of view, primary closure is the method of choice.

That Cerebrospinal-Fluid-Protein may be Increased in Rheumatoid Arthritis of the Spine is of importance in the differential diagnosis of rheumatoid spondylitis and ruptured intervertebral disk. Altered blood proteins plus increased permeability of meninges are postulated as factors in this rise. (Ludwig et al, N.E. Jour. Med., Mar. 11, '43.)

* * * * *

Visual Education - Dental: An additional motion picture film can be added to the list published in the last issue of the Bumed News Letter. Title: "A Technic in the Construction of a Fixed Bridge Supplying the Maxillary Incisors."

* * * * *

Handbook for Naval Dental Technicians (General): The Naval Dental School has compiled and made available a Handbook for Dental Technicians (General). Completed in December, 1942, it is the first handbook of this kind sponsored by the Naval Dental Corps. Well illustrated, it is felt that this book will help standardize instruction of dental technicians (general) throughout the Navy. Supply is limited; the book therefore cannot yet be made available to each dental technician. Books will be loaned to students by dental officer instructors and recalled at the completion of the course.

* * * * *

New Concepts of Infection: In his presidential address before the Society of American Bacteriologists in December, Dr. S. A. Waksman discussed the microbe as a biological system. He points out that in nature the great majority of microbes carry out their normal activities not in pure cultures but in mixed populations. This must be contrasted with the manner in which bacteriologists deal with hothouse varieties of bacteria, far removed from their naturally occurring progenitors.

Considerable evidence has now accumulated to indicate that microbes assist one another in creating favorable conditions or in preparing the required nutrients; compete with one another for the available foodstuffs; exert a variety of other functions, whereby they influence the activities of other living systems. Microbes produce stimulating substances, the nature of which is not yet known, injurious substances, such as toxins and phages, and a variety of other agents which result in the destruction of some microbes by others.

The physiology of an organism in pure culture is so markedly different from that of the same organism in a mixed population that one is often astonished to discover that an old friend, known and recognized by its specific reactions in given media, behaves quite differently in the presence of other organisms. A certain fungus, capable of decomposing cellulose, was found to prefer protein as a source of energy. In the presence of another organ-

ism which could not decompose the cellulose but could utilize the protein, the first microbe proceeded to decompose the cellulose.

Aside from nutritive associations, there are other associations among microbes which may be designated as environmental, where one organism makes conditions favorable for the growth of another, as in the case of aerobes living together with anaerobes.

The problem of vitamin requirements and vitamin synthesis by micro-organisms has an important bearing on their growth. Some microbes are capable of synthesizing their own requirements for growth-promoting substances, whereas others require an additional supply of vitamins for growth and reproduction.

When two or more microbes live together, one may become antagonistic to or exert an injurious effect on the other. Out of these studies have come such work as that on penicillin, tyrothricin, etc. Many organisms have been found capable of producing antibiotic substances when grown on artificial media. Dr. Waksman suggests among other possibilities: a) the domestication of micro-organisms for disease control; b) the isolation of new chemotherapeutic agents for combating animal diseases; c) the utilization of the activities of the micro-organisms for combating certain plant diseases. (Jr. Bact., Jan. '43, p. 1.)

* * * * *

Typhus in Germany: Germany had nearly 4,000 cases of typhus during the first nine months of 1942, according to a statement made in the League of Nations report. No cases of typhus occurred among the civilian population in Germany in 1939; there were six cases in 1940; 395 in 1941. When the number rose to nearly 4,000 in the first nine months of 1942, the Germans ceased to issue figures. (Jr. Royal Inst. Pub. Health and Hyg., Mar. 1943, pp. 63 and 65.)

* * * * *

Bureau of Medicine and Surgery Form Letters reprinted in this issue from Navy Department Semimonthly Bulletin of March 1, '43:

1. Subject: Divers, Salvage, Physical Qualifications for.
2. Subject: Roentgenographic Examinations of the Chest of All Navy and Marine Corps Personnel Entering or Ordered to Active Duty.

BUREAU OF MEDICINE AND SURGERY

From: The Chief of the Bureau of Medicine
and Surgery.

P3-3/P3-1 (054-40)
R:JLA

To: All Ships and Stations.

February 18, 1943

Subject: ROENTGENOGRAPHIC EXAMINATIONS OF THE CHEST
of All Navy and Marine Corps Personnel
Entering or Ordered to Active Duty.

References: (a) BuM&S Form Letter No. 23, dated Jan. 5, 1942.
(b) BuM&S Letter P3-3/P3-1 (054-40), R-VC, Aug. 8, 1942;
N. D. Bul. of Aug. 15, 1942, R-447.

1. Paragraph (10) of reference (a) is modified to read as follows:

The following roentgenographical findings are considered sufficient
cause for rejection:

(a) Any evidence of reinfection (adult) type tuberculosis, active or in-
active, other than slight thickening of apical pleura, or thin solitary
fibroid strands.

(b) Evidence of active primary (childhood) type tuberculosis.

(c) Extensive multiple calcification in the lung parenchyma, or massive
calcification in the hilum, or any calcification of questionable
stability.

(d) Evidence of fibrinous or serofibrinous pleuritis, except moderate
diaphragmatic adhesions with or without blunting or obliteration of the
costo-phrenic sinus.

(e) Other disqualifying defects demonstrable by Roentgen examination of
chest (see paragraph 1477, Manual of Medical Department).

ROSS T. McINTIRE

BUREAU OF MEDICINE AND SURGERY

From: The Chief of the Bureau of Medicine
and Surgery.

P2-5/S94 (103)

R:JLA

To: All Ships and Stations.

February 18, 1943

Subject: DIVERS, SALVAGE, Physical Qualifications for.

References: (a) BuPers Manual Art. D-5327 (1).
(b) Manual of Med. Dept., Chapter 11, Paragraph 1536.

1. The Secretary of the Navy has approved physical qualifications for the rating "Diver, salvage," which have been included in reference (a) by an approved modification.

2. For the duration of the present war candidates for "Divers, salvage," shall meet the requirements of reference (b) except as follows:

(a) (1) Syphilis - History is not disqualifying if there has been adequate treatment and no signs of activity or organic involvement are discovered.

(b) Age - Not over 40 years unless the applicant was employed in civilian life as a diver at the time of his enlistment. In candidates over 40 years of age the examiner should carefully consider the general physical fitness of the individual in relation to his experience as a diver.

(c) Weight - Moderate excess over standards is not disqualifying unless due to obesity.

(d) Vision - Not less than 12/20 binocular vision without lenses.

(e) Defective color perception is not disqualifying.

(h) Breath holding - Candidates should be capable of holding the breath after full expiration and inspiration for a period of 30 seconds.

(i) Respiratory system - Deviation of the nasal septum is not disqualifying provided there is adequate ventilation.

(j) Cardiovascular system - (1) Candidates with moderate hardening of the peripheral vessels may be accepted provided there is no evidence of arteriosclerotic changes in the retinal vessels. Blood pressure should be commensurate with age and build of the individual. In general systolic pressure of 150 or more or diastolic pressure of 95 or more is disqualifying.

(2) Circulatory efficiency test - Not required.

(m) Teeth - Shall meet the requirements for enlistment in the U.S. Naval Reserve.

ROSS T. McINTIRE.